

Express Mail Label No. EL722983438US

[0001] **HINGE MEMBER PRODUCT DISPLAY SYSTEM**

[0002] This application claims priority from U.S. Provisional Application No. 60/206,149, filed May 22, 2000.

[0003] The present invention relates to product display systems and methods. More particularly, the present invention relates to "wing" design product display systems and methods.

[0004] **BACKGROUND**

[0005] Product samples such as hardwood floors, laminate composition floors, and ceramic tile have traditionally been displayed for sale on shelves, shelf rails or enclosed in pivotally mounted frames often referred to as "wings." Wing design displays typically comprise four members defining a generally rectangular frame. The top frame member has a through slot for insertion of the product sample. The side and bottom frame members have grooves for receiving and retaining the product sample. Pins extend from the top and bottom members adjacent a rear edge and are configured to be received in top and bottom rails of a display rack. The frames are rotatable about the pins to allow a customer to flip through the displayed products.

[0006] Wing designs are desirable because they make efficient use of space and allow for easy viewing of the entire sample. They also enable potential customers to turn samples in much the same way as turning pages in a book. However, the frames generally have a fixed sized, and therefore, support only products in a limited size range. Products wider or thicker than the frame cannot be accommodated. Products smaller than the frame may be accommodated, but such generally requires the provision of a backing panel or the like which is dimensioned to fit in the frame.

[0007] Applicants have recognized, there is a need for an assembly which allows products to be displayed in the wing manner with greater flexibility.

[0008] **SUMMARY**

[0009] The present invention provides a wing design product display system and method. The system preferably comprises pairs of hinge members, each having a pin extending therefrom for positioning in a respective support rail member or bracket. Preferably, at least one of the hinge members of each pair comprises opposed clamp portions which secure an upper edge of a product sample therebetween. When installed for display, the product sample maintains upper and lower hinge members in opposed positions hingedly engaged with in respective upper and lower brackets. If the product sample is not rigid, it may be displayed in conjunction with a support panel, for example abutted transparent panels with the product positioned therebetween, where a pair of hinge members are disposed on opposite edges of the support panel.

[0010] **BRIEF DESCRIPTION OF THE DRAWINGS**

[0011] Figure 1 is a partially exploded isometric view of a product display system incorporating the present invention.

[0012] Figure 1a is a perspective view of an alternate bottom hinge member.

[0013] Figure 2 is an isometric view of a first embodiment of a hinge member of the present invention.

[0014] Figure 3 is an isometric view of the inside configuration of one of the clamp members of the hinge member embodiment of Figure 2.

[0015] Figure 4 is an isometric view of the hinge member of Figure 2 with a product positioned therein.

[0016] Figure 5 is an isometric view of a second embodiment of a hinge member of the present invention.

[0017] Figures 6a and 6b illustrate inside elevation views of the two clamp members of the hinge member embodiment of Figure 5.

[0018] Figure 7 is an isometric view of a third embodiment of a hinge member of the present invention.

[0019] Figure 8 is a cross-sectional view along the line 8-8 of Figure 7.

[0020] Figure 9 is a perspective view of a fourth embodiment of a hinge member of the present invention.

[0021] Figure 10 is a cross-sectional view along line 10-10 of Figure 9.

[0022] **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

[0023] The present invention is described with reference to the drawing figures where like numerals represent like elements throughout.

[0024] Referring to Figure 1, an illustrative product display system 10 is shown. The system 10 includes a display wall 12 upon which top and bottom support rails or brackets 14, 16 are mounted. Preferably, a hinge member 50 engages each end of a rigid product sample 20. Each support bracket 14, 16 has an array of apertures 18 which define hinge points for receiving a hinge pin 56 of the respective hinge members 50. Preferably, the support brackets are mounted at a predetermined spacing in parallel so that respective apertures are aligned to provide pairs of upper and lower hinge points. With two hinge members attached to a product sample, the hinge clamp pins 56 are positioned in a pair of the respective pin holes 18 so that the product sample 20 is pivotally supported between the opposed brackets 14, 16. A desired selection of product samples are, accordingly, readily displayable in like manner, each hingedly mounted via a respective pair of upper and lower apertures to pivot about a respective pair of hinge points. Unlike prior art 'wing' type displays, the product sample itself provides both structural support and spacing of the hinge members.

[0025] While the bottom hinge member 50 in Figure 1 is shown as being a two piece clamp, it may also be formed as a single unit 50a having a product receiving slot 51 as

illustrated in Fig. 1a. When using a bottom slotted member 50a, a product sample 20 may be supported in the slot 51 of the bottom hinge member 50a with or without attachment thereto. For example, a product sample 20 may be attached via a fastener such as a screw 53 which passed through a wall aperture 55 of the hinge member 50a and engages the product sample 20. Alternatively, the interior of the slot 51 may be configured for a friction fit or with internal resilient rubber or foam rubber sides.

[0026] The hinge members may be made of any type of durable material. However, the slotted hinge member 50a illustrated in Figure 1a is preferably a thermoplastic material with a metal hinge pin molded therein.

[0027] To display a product sample 20 using two hinge members 50, the hinge members are secured to upper and lower edge portions of the product sample 20 to define upper and lower hinge members having a selected spacing maintained by the product sample 20 with the upper hinge member 50 having its hinge pin 56 extending away from the upper edge portion of the product sample 20 and the lower hinge member having its hinge pin 56 extending away from the lower edge portion of the product sample 20. Preferably, the spacing between the support brackets 14, 16, the length of the hinge pins 56 and the vertical dimension of the displayed product samples 20 are selected so that a product sample 20, having top and bottom hinge members 50 secured thereto, is readily installed on the brackets 14, 16 by first inserting the upper hinge member pin in an aperture in the upper bracket 14, positioning the lower hinge pin over a corresponding aperture in the lower bracket 16, and lowering the product sample 20 whereby both pins are maintained in a respective pair of hinge apertures providing hinged mounting of the product sample 20 on the brackets.

[0028] The product sample 20 is likewise readily removable by lifting the product sample 20 upwardly to disengage the pin 56 of the lower hinge member 50 from the aperture in the lower bracket 16, tilting the bottom of the panel outwardly so that the lower pin 56 clears the lower bracket 16, and lowering the product sample 20 to disengage the upper hinge member pin 56 from the aperture of the upper bracket 14.

[0029] Where the slot type hinge member 50a is secured to the bottom of the sample product 20, installation and removal is preferably performed in the manner described above. However, use of the slot type bottom member 50a enables an alternate method of installation and removal. Instead of first attaching the bottom member 51a to a bottom edge of a product sample, the pin 56 of the bottom member 50a is first inserted into a hole of the bottom bracket 16. The pin of an upper hinge member 50, which is already attached to an upper end of a product sample 20, is fully inserted into a corresponding upper bracket hole. The bottom edge of the product sample 20 is then positioned over the bottom member slot 51 and the product sample 20 is lowered to engage the slot 51 completing the hinge mounting of the product sample on the brackets 14, 16. Removal of the product sample 20 in such case is preferably achieved by lifting the product sample out of the slot 51 of the bottom member 50a, tilting the product sample 20 to clear the bottom member 50a and lowering the product sample 20 to disengage the upper hinge pin 56 from the upper bracket 14. In this case, the bottom member 50a may be more permanently attached to the bottom brackets by conventional means, such as by attaching a cotter pin or spring clip to the end of the bottom member pin 56 after insertion into an aperture of the bottom bracket 16.

[0030] As can be seen in Figure 1, for each product sample 20, two hinge members are provided which are independent of one another and are not joined by any framing material. The rigidity of the product sample 20 maintains the two hinge members 50 in their opposed configuration.

[0031] The product sample 20 may be comprised of multiple pieces 20a, 20b, such as to display tongue and groove planking. If it is desired to display a non-rigid product, the product sample may be supported by a rigid support panel (not shown) which would provide the required rigidity between the opposed hinged members 50. For example, a product sample could be positioned between a pair of transparent plastic panels, with the panels being secured by the hinge members and maintaining the non-rigid product sample in a displayable position.

[0032] Since the hinged members are not constrained by vertical frame members, the size range of displayable products is greatly increased. For example, if a shorter product is to be displayed, a longer hinge pin 56 can be used with the top hinge member such that it still engages the top bracket rail even though the product sample is shorter. Alternatively, multiple or vertically adjustable brackets can be provided. Additionally, with a slight modification, as illustrated in Figures 7 and 8 with respect to hinge member 160, wider product samples can also be displayed extending beyond the edge of the hinge member by eliminating any outward obstruction from the non-hinge side of the hinge member 160.

[0033] Referring to Figures 2-4, a first embodiment of a hinge member 50 is shown. The hinge member 50 comprises a pair of opposed clamp members 52, 54, a hinge pin 56, and fasteners 58. One of the clamp members 52 includes a cylinder 64 adjacent one end thereof which defines a pin receiving hole 67. The cylinder 64 preferably has a closed bottom 65 such that the pin 56 cannot pass completely therethrough. The other clamp member 54 includes a notch 63 sized and positioned such that it aligns with the cylinder 64 when the two clamp members 52, 54 are mated. Clamp member 54 has alignment projections 66 and 70 at its respective ends which align with respective receptacles 68 and 72 in clamp member 52. The projections 66, 70 and receptacles 68, 72 mate as the clamp members 52 and 54 are brought together to maintain the alignment between two components 52, 54. Additionally, since the projections 66 and 70 extend from clamp member 54, alignment can be maintained for product samples 20 having different thicknesses.

[0034] To secure the two clamp members 52, 54 together, a pair of fasteners are inserted through bores 60 in clamp member 54 and secured in threaded bores 62 of the clamp member 52. Alternatively, the fasteners 58 can be passed through bores in each member 52, 54 and secured by a nut or the like. Referring to Figure 1, the product sample 20 is preferably provided with bores 60 aligned with the bores in clamp member 54. However, it is possible to "sandwich" the product sample between the adjoining clamp members 52, 54 instead of passing the fasteners through the product sample. Referring to Figure 4, once the

product sample is positioned between the clamp members, the fasteners 58 are inserted to unite the two clamp members 52, 54 thereby securing the hinge member to an edge portion of the product sample 20.

[0035] Referring to Figures 5, 6a and 6b, a second embodiment of a hinge member 100 is shown. The hinge member 100 also includes a pair of opposed clamp members 110 and 112 with alignment means 124 and 126 at one end. The opposite ends of the members 110, 112 are configured to be hingedly coupled by a pin 134. Referring to Figures 6a and 6b, one of the clamp members 110 has top and bottom cylinders 114 each defining a hole 115. The bottom cylinder 114 preferably has a closed bottom 117 to provide a stop for the bottom hole 115. The space 116 between the two cylinders 114 is open to receive a cylindrical portion 120 of the other clamp member 112. Clamp member 112 has a central cylinder 120 with a hole 115 extending therethrough. Above and below the central cylinder 120 are open spaces 118 and notches 119 configured to align with and receive the cylinders 114 of the other member 110. The hinge clamp 100 is assembled by aligning the cylinders 114 and 120 and inserting the pin 134 into the continuous hole 115. The members 110 and 112 can then be opened to receive a product by pivoting one relative to the other. Once the product sample is positioned between the clamp members 110, 112, they are closed and secured by a latch assembly 128, 130. A pliable material 132, for example rubber, is preferably positioned on the inside of each clamp member 110, 112 to grip the product sample and also to provide some lateral flexibility depending on the product width.

[0036] Referring to Figures 7 and 8, a third embodiment of a hinge member 150 is shown. Hinge member 150 comprises opposed clamp members 160 and 162 and a hinge pin 184 which is received in an aperture 165. The hinge pin aperture 165 may be formed in either one or both clamp members 160, 162, such as discussed above with respect to the first and second embodiments, respectively.

[0037] The clamp members 160 and 162 are joined by a pair of spring clip members 170. Each clamp member 160, 162 has recessed portions which align with recessed portions

of the other member to define clamp grooves 166. Each groove 166 has a sloped vertical edge 169 leading to a retention indent 167. A stop 168 extends across each groove 166 adjacent to the top edge of the members 160, 162. The spring clip 170 has a bridge portion 174 with two depending legs 176 which terminate in abutment portions 172. The clips 170 are moveable between a relaxed position where the abutment portions 172 are adjacent to the stops 168 and tensioned positions where the abutment portions 172 are retained in the indents 167. In the relaxed position, the members 160, 162 can be separated slightly to receive the desired product sample 20. Once the product sample 20 is positioned therebetween, the clips 170 are moved to their tensioned position, whereby the product sample is retained. Again, each member 160, 162 preferably has pliable material 182 inside to grip the product and to provide some lateral flexibility.

[0038] The respective ends 190, 192 of the clamp members 160, 162 opposite the hinge pin 184 may be configured with or without engaging end portions such as elements 70, 72 of the hinge member 50. Where no mating engaging elements are provided, the width of the product sample 20 is unrestricted.

[0039] Referring to Figures 9 and 10, a fourth embodiment of a hinge member 80 made in accordance with the teachings of the present invention is shown. Hinge member 80 is configured with a slot portion 81 defined by internal end slot sections 83 and a plurality of internal ribs 84. Preferably, the hinge member is made of a thermoplastic material with a projecting metal pin 86 molded into one end of the hinge member 80. The slot 81 is preferably dimensioned to complement product samples 20 having top and bottom edges of a known preferred thickness so that the ribs 84 of the hinge member 80 engage opposing sides of a product sample with a friction fit. For additional securing of the product sample 20, a screw 86 or other type of fastener is provided for engagement with the product sample 20 through a bore 87 defined in the hinge member 80. The screw 86 may be a set screw where the bore 87 is threaded or may, when appropriate, be designed to penetrate the product

sample 20. The screw enables the hinge member to be secured to a product sample 20 even when the particular sample is thinner than the preferred thickness.

[0040] Additional thin slots 89 are preferably defined in the hinge member 89 so that when the hinge member 80 is employed as a top hinge member, advertising fliers, pricing information cards or the like, may be inserted into the slots 89 for display.

[0041] While several variations of hinge members have been disclosed, one or more types of hinge members in accordance with the invention may be used with respect to any given multi-panel display. One preferred combination is to utilize for upper hinge members the type of hinge member 80 depicted in Figures 9 and 10 and to utilize for bottom hinge members the type of hinge member 50a illustrated in Figure 1a.

[0042] Other modifications, configurations and adaptations will be apparent to those of ordinary skill in the art and are within the scope of the present invention.

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